

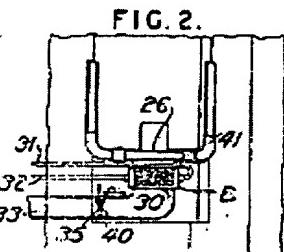
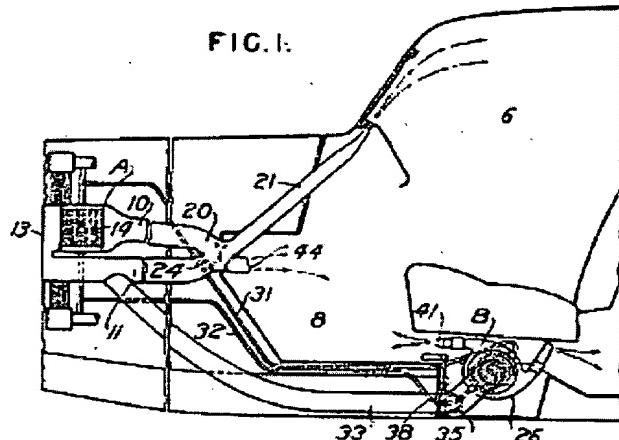
## Improvements relating to the heating and ventilating of motor vehicles

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**Publication date:** 1953-01-14  
**Inventor:**  
**Applicant:** DAIMLER BENZ AG  
**Classification:**  
 - international: **B60H1/00; B60H1/00;**  
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**Application number:** GB19510006071 19510313  
**Priority number(s):** DEX686063 19500313

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### Abstract of GB686063

686,063. Ventilating and heating vehicles. DAIMLER-BENZ AKT.-GES. March 13, 1951 [March 13, 1950], No. 6071/51. Class 137 [Also in Group XIII] A heating and ventilating system for motor vehicles adapted for the delivery to the interior of the vehicle of cool or heated fresh air or of circulated air or a mixture thereof is so arranged that air of different temperatures or mixture compositions, i.e. proportions of fresh and circulated air, may be delivered simultaneously to different parts of the vehicle interior. The arrangement shown comprises two units A and B, the unit A supplying air mainly to the upper part 6 of the vehicle space and the unit B supplying air to the lower part 8. The unit A includes two ducts 10, 11 leading from a common intake 13, a heat-exchanger 14 connected into the engine coolant system being provided in the duct 10. Heated air and cold air respectively passing through the ducts 10, 11 is directed to a mixing chamber 20 which contains a valve 24 whereby the temperature of the air is regulated before its passage through a duct 21 leading to the vicinity of the windscreens and to the upper part 6 of the vehicle space. The unit B comprises a blower 26 having a second heat-exchanger 30 located at the blower intake, the heat-exchanger 30 also being supplied, through pipes 31, 32, with hot fluid from the engine-coolant system. Cold fresh air is directed through a duct 33 connected into the duct 11 and through the heat-exchanger 30 where it is heated before passing through the blower to outlet pipes 41 extending transversely of the vehicle space. Means (not shown) may be provided to cut off the supply of hot fluid to the heat-exchanger 30 when the unit B is not required to supply heated air. The duct 33 is provided with a port 35 incorporating a manually operated valve 40, which can be positioned (as shown) to close the duct 33, thus allowing air in the vehicle to recirculate



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through the blower. Alternatively, the valve 40 may be operated to allow a mixture of heated or unheated fresh air and recirculated air to be passed through the blower 26. The unit A may be provided with a valve-controlled outlet 44 so that hot air or cold air or a mixture thereof may be directed into the footspace 8 of the vehicle interior. The heat-exchanger 30 may be a cooler or it may be removed and replaced by a length of piping during the period when heating is not required.

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## AMENDED SPECIFICATION

Reprinted as amended in accordance with the Decision of the Superintending Examiner acting for the Comptroller-General, dated the twentysecond day of April, 1954, under Section 14 of the Patents Act, 1949.

# PATENT SPECIFICATION

686,063



Date of Application and filing Complete Specification: March 13, 1951.

No. 6071/51.

Application made in Germany on March 13, 1950.

Complete Specification Published: Jan. 14, 1953.

Index at acceptance:—Classes 64(ii), G2d; and 137, B3e.

### COMPLETE SPECIFICATION

#### Improvements relating to the Heating and Ventilating of Motor Vehicles

We, DAIMLER-BENZ AKTIENGESELLSCHAFT, of Stuttgart-Unterturkheim, Germany, a Company incorporated under the laws of Germany, do hereby declare the invention, for which we

5 pray that a patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:—

This invention comprises improvements relating 10 to the heating and ventilating of motor vehicle bodies. In known systems, the interior of the vehicle can be supplied with either cool or heated fresh air, or a heated mixture of fresh air and so-called circulated air, namely, 15 air continuously taken from and re-introduced into the interior. Moreover in the said systems it has been possible to supply simultaneously to the different parts of the interior of the vehicle, air having different mixture compositions (i.e. different proportions of fresh and 20 circulated air) and temperatures suitable for respective parts.

According to the present invention, a heating and 25 ventilating system for a motor vehicle, adapted for the delivery at will to the interior of the vehicle of cool or heated fresh air or of circulated air, or a mixture thereof and comprising means adapted for the delivery simultaneously of air of different temperatures or 30 mixture compositions to different parts of the said interior, is distinguished by the combination of a heating and ventilating unit disposed in the engine space and comprising a warm air duct provided with a heat exchanger and a parallel cold air duct, these ducts having an air intake at the front of the vehicle and being controllably connected at their rear end with a mixing chamber delivering into the upper front

part of the interior of the vehicle, and a second heating and ventilating unit disposed beneath the front seats of the vehicle and comprising a duct fitted with a blower and a heat exchanger in advance of the blower suction, the last-mentioned duct having two controlled air intakes one connected with the air intake of the first unit and adapted for admitting fresh air to the blower suction and the other adapted for admitting air from the interior of the vehicle to the said blower suction, this second unit delivering into the interior of the vehicle beneath the level of the front seats by means of horizontal distributing pipes disposed transversely of the vehicle beneath the front seats near the front and rear edges of the latter and having delivery orifices directed into the foot spaces appertaining to the front and rear seats.

In order to enable the invention to be readily understood, reference is made to the accompanying drawing illustrating one practical arrangement by way of example, in which drawing:—

Fig. 1 is a diagrammatic vertical longitudinal section through the front part of a passenger motor vehicle, equipped with a heating and ventilating system in accordance with these 65 improvements and

Fig. 2 is a plan of the rearward part of Figure 1.

Referring to the drawing, the system comprises two units, working to a large extent independently of one another, i.e. in the first place the unit A which is known *per se* and which is accommodated in the engine space 5 and is principally intended to supply the upper part 6 of the interior of the vehicle with fresh air; and a second unit B accommodated

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- delivery simultaneously of air of different temperatures or mixture compositions to different parts of the said interior, distinguished by the combination of a heating and ventilating unit disposed in the engine space and comprising a warm air duct provided with a heat exchanger and a parallel cold air duct, these ducts having an air intake at the front of the vehicle and being controllably connected at their rear end with a mixing chamber delivering into the upper front part of the interior of the vehicle, and a second heating and ventilating unit disposed beneath the front seats of the vehicle and comprising a duct fitted with a blower and a heat exchanger in advance of the blower suction the last-mentioned duct having two controlled air intakes one connected with the air intake of the first unit and adapted for admitting fresh air to the blower suction and the other adapted for admitting air from the interior of the vehicle to the said blower suction, this second unit delivering into the interior of the vehicle beneath the level of the front seats by means of horizontal distributing pipes disposed transversely of the vehicle beneath the front seats near the front and rear edges of the latter and having delivery orifices directed into the foot spaces appertaining to the front and rear seats.
2. Heating and ventilating system as claimed in claim 1, wherein a regulating and change-over valve is provided at the point where the two parallel ducts open into the mixing chamber, and one or more broad jet nozzles directed towards the inside surface of a window or windows of the vehicle are connected to the mixing chamber.
3. Heating and ventilating system as claimed in claim 1, wherein the heat exchanger of said second unit is adapted for ready removal and is replaceable by a simple length of piping or by a cooling element of corresponding dimensions.
4. Heating and ventilating system as claimed in claim 1, wherein there is disposed in the suction branch of the blower of said second unit an opening communicating with the interior of the vehicle for the admission of circulated air to said branch, this opening being fitted with a change-over and regulating valve by means of which circulated air only, or fresh air only, or a mixture of the two can be delivered to the blower and thence to the interior of the vehicle.
5. Heating and ventilating system as claimed in any one of claims 1 to 4, wherein the heat exchangers of the two individual units are connected with the engine cooling water system.
6. Heating and ventilating system as claimed in claim 1, wherein the mixing chamber of the unit disposed in the engine space is provided with an outlet branch closable by a valve and leading into the lower part of the interior of the vehicle.
7. Heating and ventilating system for a motor vehicle comprising two interconnected units each fitted with a heat exchanger, one of such units being adapted for the delivery of heated fresh air or cold fresh air, or a mixture of the two to the upper part of the interior of the vehicle, and the other of such units being adapted for the delivery of circulated air, or fresh air, or a mixture of the two to the foot space of the vehicle substantially as hereinbefore described with reference to the accompanying drawing.

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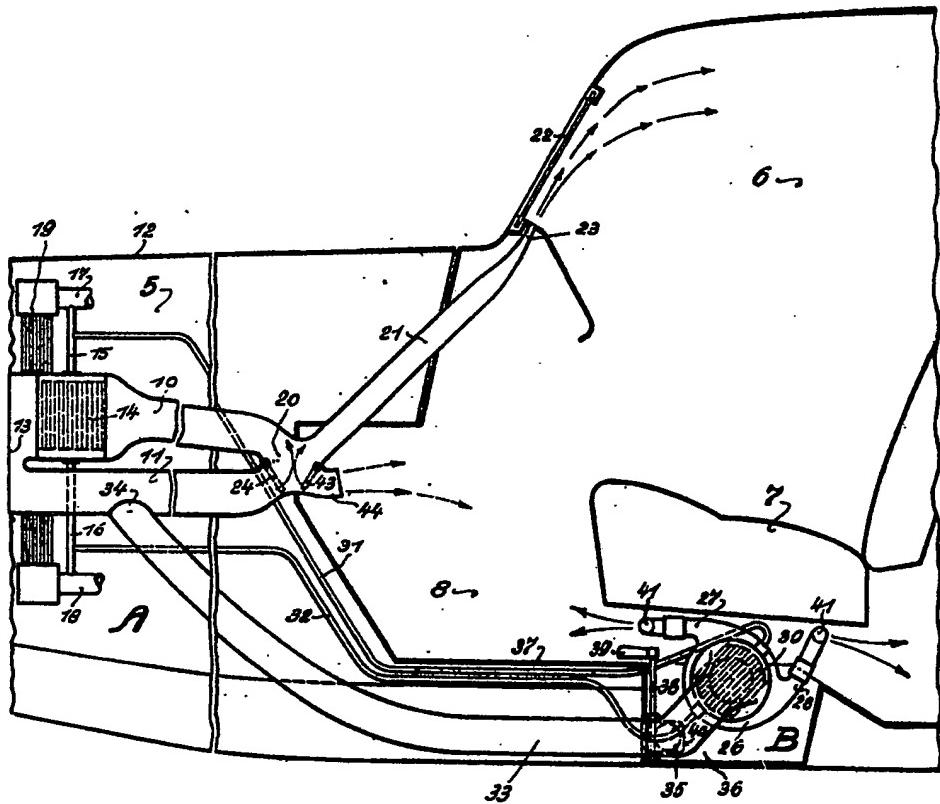
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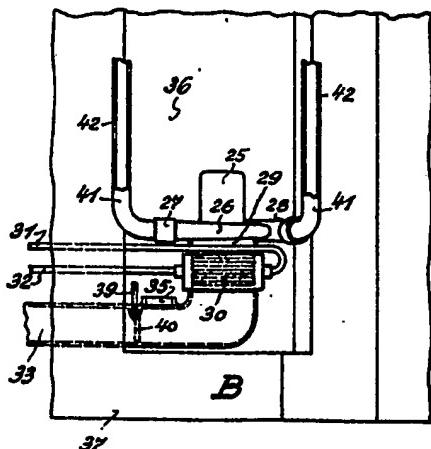
**686,063 AMENDED SPECIFICATION**

1 SHEET

This drawing is a reproduction of  
the Original on a reduced scale.



*Fig. 1*



*Fig. 2*

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